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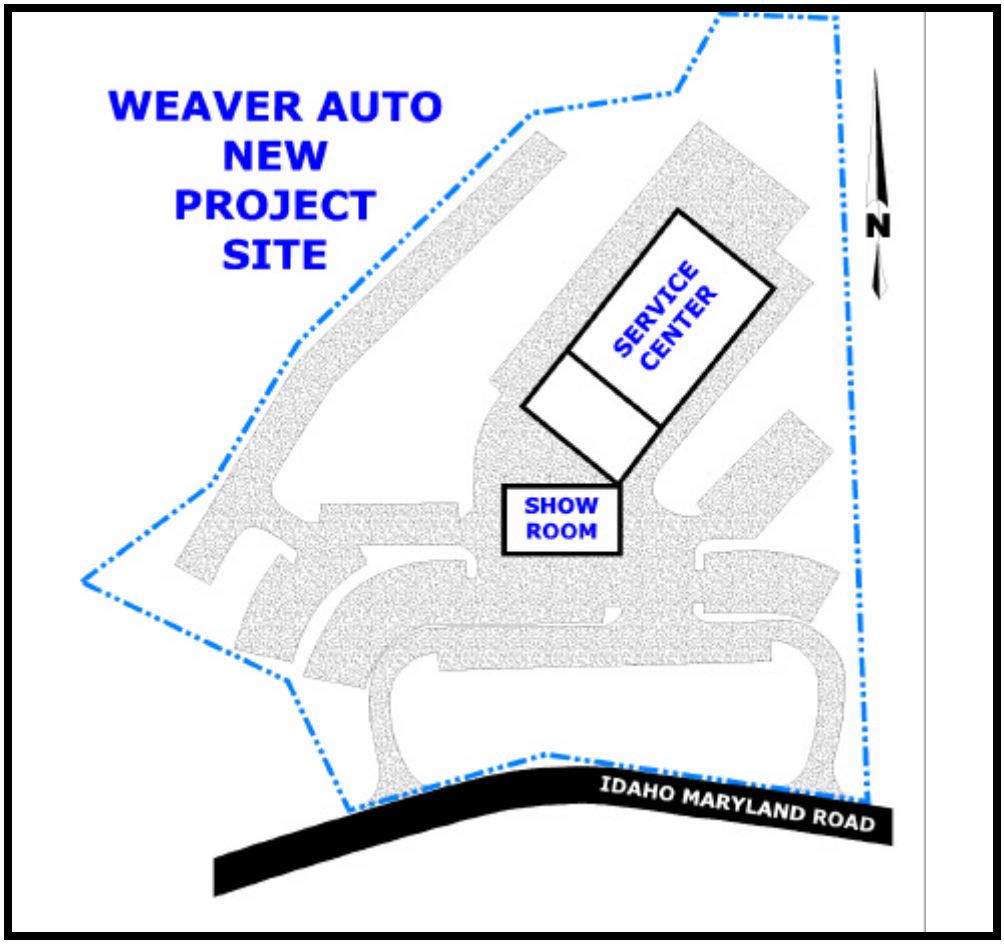

WEAVER AUTO AND TRUCK CENTER
FINAL TRAFFIC IMPACT STUDY

Prepared for
THE NEVADA COUNTY TRANSPORTATION COMMISSION

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Executive Summary

This report summarizes the traffic impacts of relocating the existing Weaver Auto and Truck Center new car dealership to a larger site within the City of Grass Valley. Specifically, the dealership is proposed to move from its existing East Main Street site at/near Scandling Avenue to an undeveloped lot along Idaho Maryland Road on the east side of the S.R. 20/49 freeway.

Figure ES.1 shows the location of the existing dealership site spread across several parcels in the vicinity of Scandling Avenue. Also shown on the figure is the proposed new site with closer access to the S.R. 20/49 freeway system from Idaho Maryland Road. Traffic conditions along East Main Street in the vicinity of the existing project site and the Idaho Maryland Road intersection are at LOS E/F conditions during the pm peak hour.

Existing Plus Project Conditions Scenario

This study found that the project's direct traffic impact can be shifted to the new location without exceeding the City's 2 second threshold of delay at the Idaho Maryland/East Main Street intersection (LOS F delay increased from 56 to 57 seconds of average delay, see Table 3). In fact, when the Weaver dealership traffic is shifted to the new location this helps to lessen its impact. In other words, the new location is a better location from a traffic impact standpoint for East Main Street.

However, the intersection of Idaho Maryland Road at the SR 20/49 EB Ramps went from 38 seconds of LOS E delay with approved projects to 44 seconds of LOS E delay with the proposed Weaver project traffic. This condition, while not as severe as at the Idaho Maryland / East Main intersection, still requires the project to mitigate the deficiency because the City's two second threshold was exceeded. A signal at this location will mitigate the level of service from LOS E/F to LOS D conditions before the Dorsey interchange is constructed and LOS C on opening day of Dorsey interchange.

The Existing Dealership Site After Relocation

Once the existing site is vacated, there are several options for the City to consider. It is not feasible that a similar new car sales dealership will "move in" to the facility[1]. Although it is unknown what kind of business will occupy the existing site once the Weaver dealership vacates the site, the new

[1] The Weaver Auto and Truck Center is being required by GMC to move its existing location to a better, more visible location, in order to continue the franchise.

business can not exceed the threshold criteria for the intersection of Idaho Maryland Road at East Main Street.

As an alternative to a business occupying the existing site, parking may be developed. Local area parking has been deficient for several businesses, including Riebes and Hills Flat Lumber, etc.. It may be possible to convert the existing sites to either public or private parking for employees, freeing up parking in other retail areas where businesses need it. If parking lots are the solution, the traffic impact will be non-existent, as it would serve traffic parking needs for existing businesses.

An analysis of traffic impacts was performed for any new business that could occupy the site, but not exceed the City's threshold. The Weaver existing dealership generates 58 trips per hour. Not all of this can be added back in, however, since the new site uses up some of the capacity in the road system. For example, the existing delay at the Idaho Maryland/East Main intersection is an average of 54 seconds today[2]. This delay jumps to 56 seconds when approved projects are added in. It then drops to 53 seconds by subtracting off the existing dealership traffic.

If the existing delay is 54 seconds, then the final resultant delay can be no more than 56 seconds. To be conservative (to account for any rounding in calculations) we set the maximum threshold at 55 seconds, since this would be less than the maximum two-second threshold over existing conditions of 54 seconds. With the threshold set at 55 seconds, and the new "baseline" delay at 53 seconds (with existing weaver subtracted), this would allow for only 2/3 of the existing Weaver traffic levels to return to the system without exceeding the conservative threshold of 55 seconds. This equates to about 40 pm peak hour trips.

Since the existing trip rate is 2.8 trips/hour in the pm peak hour, it is then possible to have a trip rate of nearly 2 trips / KSF (2/3 of the existing rate). The ITE Trip Generation Manual was examined to determine what types of land uses would fit this level of traffic impact. These are summarized in Table ES.1. Some of the land uses are listed as "marginal" because they are near the threshold trip rate of 2 trips per KSF for the pm peak hour.

[2] Based on the more conservative PRISM Engineering count which is 10% higher than the recent Chapa De traffic count taken by ESA. Delays discussed are the intersection average, and reporting is given to the nearest second, consistent with the level of accuracy/precision appropriate for the analysis.

Table ES.1
Trip Generation of Various Land Uses Considered to Occupy the Existing Site

Land Use	PM Peak Hour Trip Rate per 1000 sq. ft.	Eligible for Existing Site?
Apparel store	3.83	No
Bank	54.77	No
Business park	**1.29**	**YES**
Church	**0.66**	**YES**
Convenience market	53.73	No
Discount club	3.80	No
Discount store	4.24	No
Drug store	7.60	No
Electronics store	4.50	No
Fast food	33.48	No
Furniture store	**0.45**	**YES**
Garden center	3.80	No
Hardware	4.42	No
Industrial park	**0.92**	**YES**
Lumber store	4.04	No
Manufacturing	**0.74**	**YES**
Medical / Dental Office	3.66	No
Mini warehouse	**0.26**	**YES**
Office (single tenant)	**1.72**	**Marginal**
Office park	**1.50**	**YES**
Racquet club	**1.83**	**Marginal**
Research and development	**1.08**	**YES**
Restaurant	10.86	No
Specialty retail	2.59	No
Supermarket	9.83	No
Tire Store	3.17	No
Toy store	4.99	No
Warehousing	**0.51**	**YES**

Source: ITE Trip Generation Manual, 6th Edition and PRISM Engineering

Summary of Mitigations Required for Project

Mitigation 1: Install Signal at Idaho Maryland Road and SR 20/49 EB Ramps

This intersection will need to be mitigated to satisfactory conditions through the installation of a traffic signal at a time before opening day of the new dealership.

Mitigation 2: Widen Idaho Maryland Road

The segment of Idaho Maryland Road fronting the project site will need to be widened by the applicant to accommodate a median turning lane. A three lane cross-section will be needed, whereas there are only two lanes today.

Mitigation 3: Existing Site Use Agreement

The existing dealership site will need to be occupied with one of the business land use categories shown in Table ES.1, which also has a "YES" in the "eligible" column. An agreement between the City and applicant to this effect needs to be made.

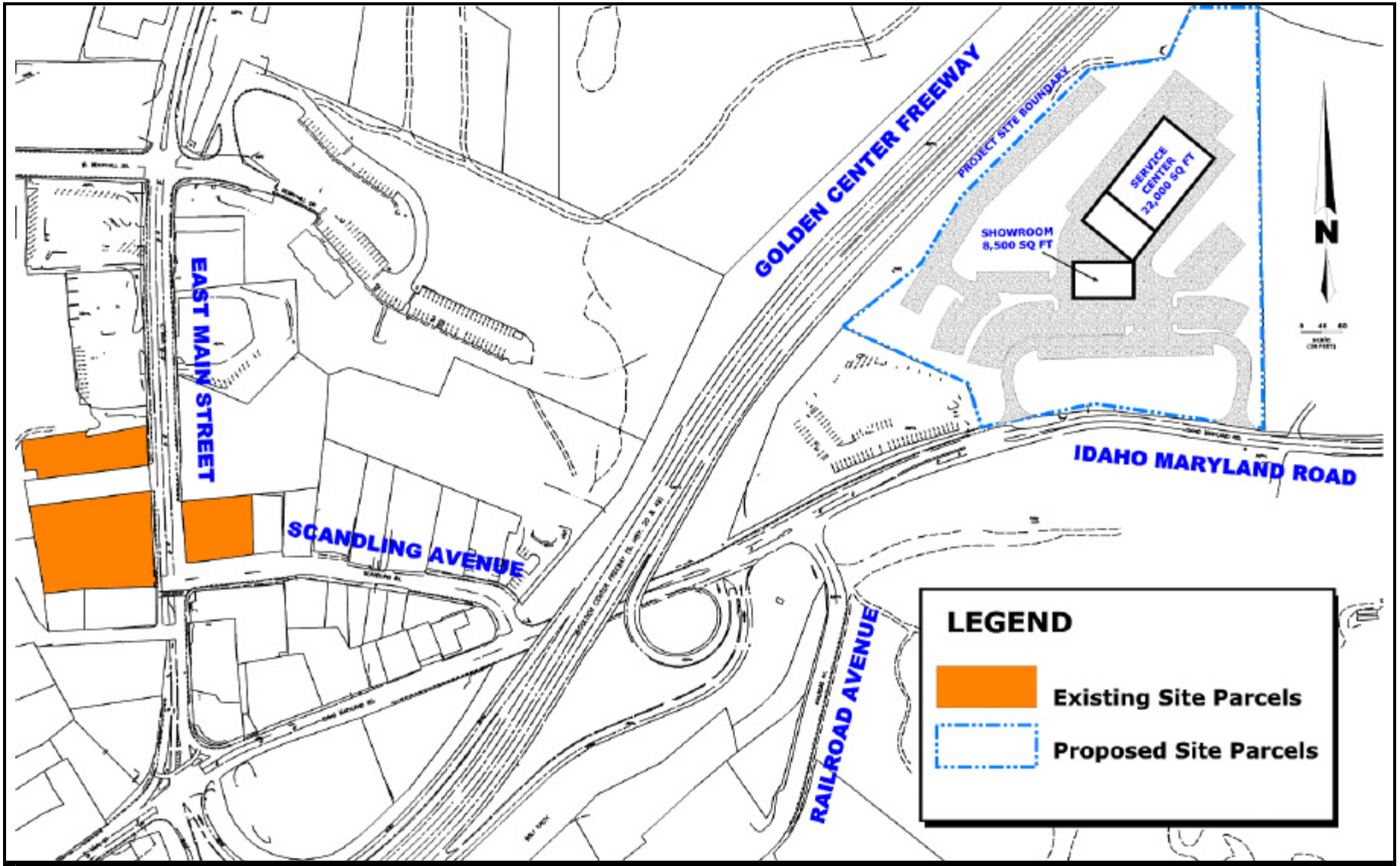


Figure ES.1 Project Site Relocation: Existing Site and Proposed Site

Introduction and Overview

The project study area is comprised of the intersections along East Main Street and Idaho Maryland Road. The purpose of this study is to determine the project's traffic impact on the surrounding street system, and present any needed mitigations for traffic conditions calculated at LOS E or worse conditions.

East Main Street at Idaho Maryland Road

This intersection currently operates at LOS E/F conditions. The existing capacity problems at this intersection are related to the sheer volume of traffic passing through it (over 2,000 vehicles per hour). The intersection has outgrown its ability as a stop sign controlled intersection to move this volume of traffic efficiently. Average delays of up to 60 seconds are common place during the peak hour time periods. This intersection has been identified in regional traffic studies as a candidate for mitigation using regional mitigation fees. The timing of the use of regional funding is set by the Nevada County Transportation Commission (NCTC), a regional government agency that disperses transportation funding towards a wide variety of capital improvement projects throughout Nevada County.

Project Description

The proposed project is not a typical "new" project application, in that there is an existing auto/truck dealership that is seeking to relocate in the City of Grass Valley to a location on the other side of the freeway.

Existing Land Use	Quantity	Proposed Land Use	Quantity
Auto Dealership With Service And Showroom	23,275 gross square feet	Auto Dealership With Service And Showroom	30,500 gross square feet

Figure 1 shows the location of the proposed dealership site on Idaho Maryland Road to the east of the Golden Center Freeway (SR 20/49). The site will have a 22,000 square foot service center, an 8,500 square foot show room, and parking sufficient to show the new car inventory. An onsite gas tank is planned to reduce off-site trips for refueling of vehicles. The site will have several retaining walls to make it possible to have sufficient parking on the existing slope.

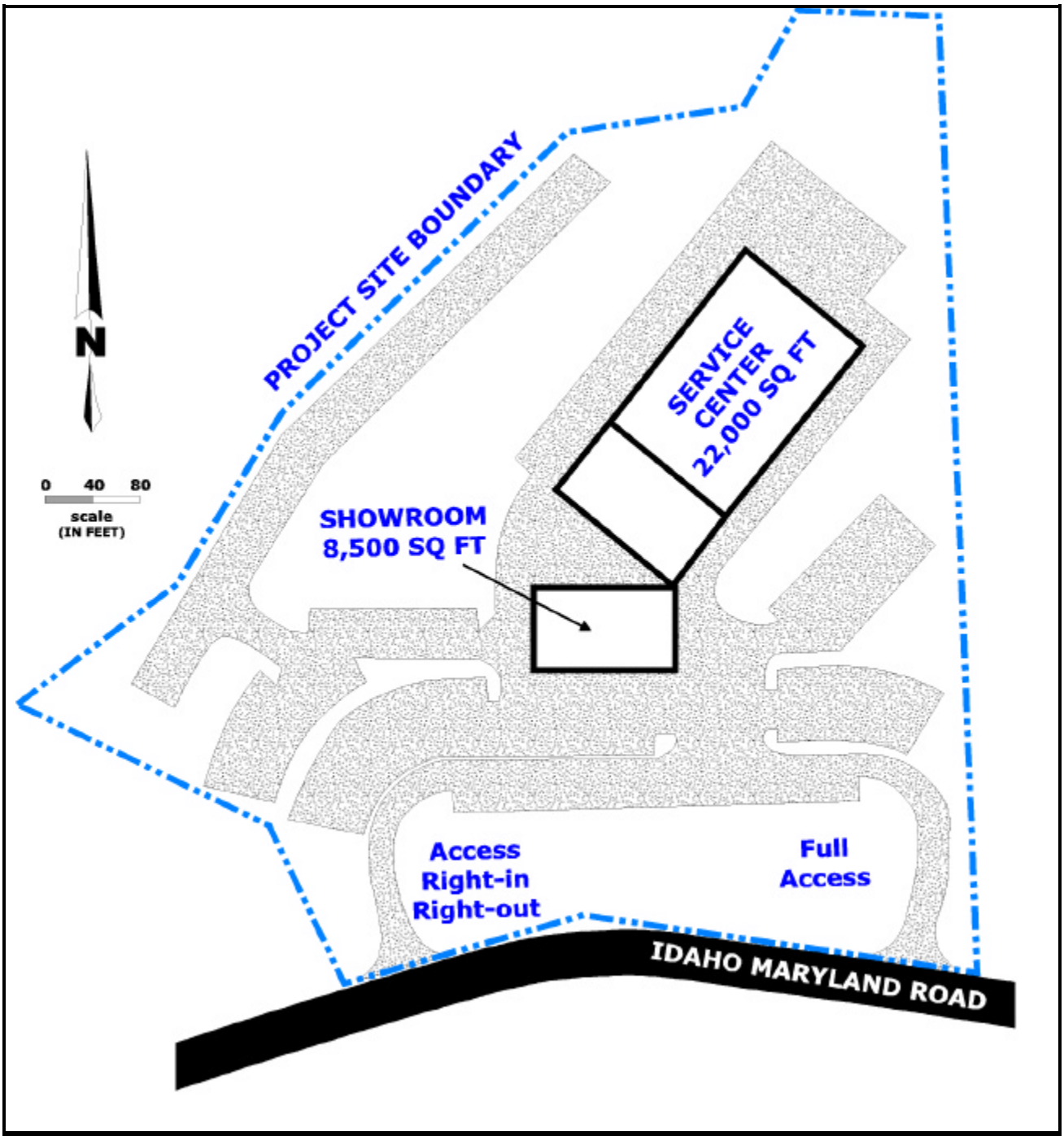


Figure 1 Project Site Map

A left turn pocket will be needed to the project's easterly entrance, as the westerly access drive is too close to an existing driveway west of the project site to allow for any left turn pocket entrance into the project site at this access point. A right-in / right-out configuration is needed for the westerly driveway.

Figure 1 illustrates the project site. The project site is located on Idaho Maryland Road to the east of the SR 20/49 freeway, accessing via two driveways on the north side of Idaho Maryland Road. Figure 1 shows the detailed project site map. There is a large area un-striped (truck turn-around feature) in the parking lot next to the southeast corner of the showroom to allow for flexibility in on-site circulation. The site needs to have incoming traffic use the easterly driveway (needs a left turn pocket), unless a two-way left turn lane is striped from Railroad Avenue up past the project site. Unless this is done, a left turn pocket is needed.

Study Area Roadways

Idaho Maryland Road: This two-lane *Arterial* road serves regional traffic as well as local traffic. The regional nature of traffic is due to its interchange with the SR 20 / 49 freeway. Traffic conditions in the vicinity of the freeway are currently at LOS E/F conditions for the pm peak hour. Traffic congestion relief for this road's intersection with East Main Street is a high priority with the local and regional planning agencies. The NCTC has studied various mitigations which include signalization of the intersection coupled with a comprehensive reworking of the onramp and frontage road system.[3] Traffic backs up from East Main Street during the pm peak hour for a 10 to 20 minute period, but does not reach the SR 20/49 EB offramp intersection. In fact, much of the backing up is due to vehicles trying to turn left into Hills Flat Lumber and Sears (they have to wait for a gap in traffic, and cause vehicles behind to be delayed). Caltrans has indicated that since an additional lane was installed on westbound Idaho Maryland Road to enable Scandling-bound traffic to have its own right turn lane, that the line of vehicles queued on Idaho Maryland Road is no longer an issue. In field observations it was noted that a significant number of vehicles turn right onto Scandling (depending on the time period, up to 50% of those coming off the freeway).

East Main Street (Nevada City Highway): This two-lane *Arterial* facility has a two-way left turn lane extant for most of its length from Idaho Maryland Road to Brunswick Road and beyond. There is currently one lane of travel in each direction, with some widening (additional lanes) at signalized intersections to provide additional capacity for left turns, etc. This road is a regional facility and carries about 12,000 vehicles per day south of Brunswick Road, and 12,750 vehicles per day just north of Idaho Maryland Road.

[3] See NCTC Frontage Road Study, PRISM Engineering, April 2004

Hughes Road: This two-lane *Collector* road connects East Main Street with Ridge Road, and serves residential pocket areas along the way. It is signalized with the East Main Street intersection, which is a three-way intersection with the possibility to expand with the advent of the SNMH expansion project. It carries approximately 8,900 vehicles per day just west of East Main Street.

Sutton Way: A two lane *Collector* facility that runs from Idaho Maryland on the south to its dead end north of Brunswick Road. It carries 7,500 vehicles per day just north of Idaho Maryland Road, and increases to 13,000 ADT just south of Brunswick Road.

Study Area

The study area for this report consists primarily of the East Main Street and Idaho Maryland Road street systems in the vicinity of the existing and proposed project sites. Included are specific intersections along East Main Street and Idaho Maryland Road as well as the access to the proposed project site. The intersections studied in this report include the following:

Intersection	Traffic Control
East Main Street and Hughes	Signal
East Main Street and Scandling	Stop Sign on Scandling
East Main Street and Idaho Maryland Road	All-way Stop
East Main Street and Bennett Street	All-way Stop*
Idaho Maryland Road and SR 20 EB Ramps	Stop Sign on Offramp
Idaho Maryland Road and Railroad Avenue	Stop Sign on Railroad
Idaho Maryland Road and Project Access	Stop Sign on Access
Idaho Maryland Road and Sutton Way	All-way Stop

**This intersection will be signalized when construction is complete in 06/04*

Figure 2 is a study area map showing the location of these five intersections in the study area, as well as the pm peak hour volumes for each intersection. The project site is located along Idaho Maryland Road just east of Railroad Avenue and the SR 20 EB Ramps.

Figure 3 shows several project study intersection on site photographs for critical intersections.

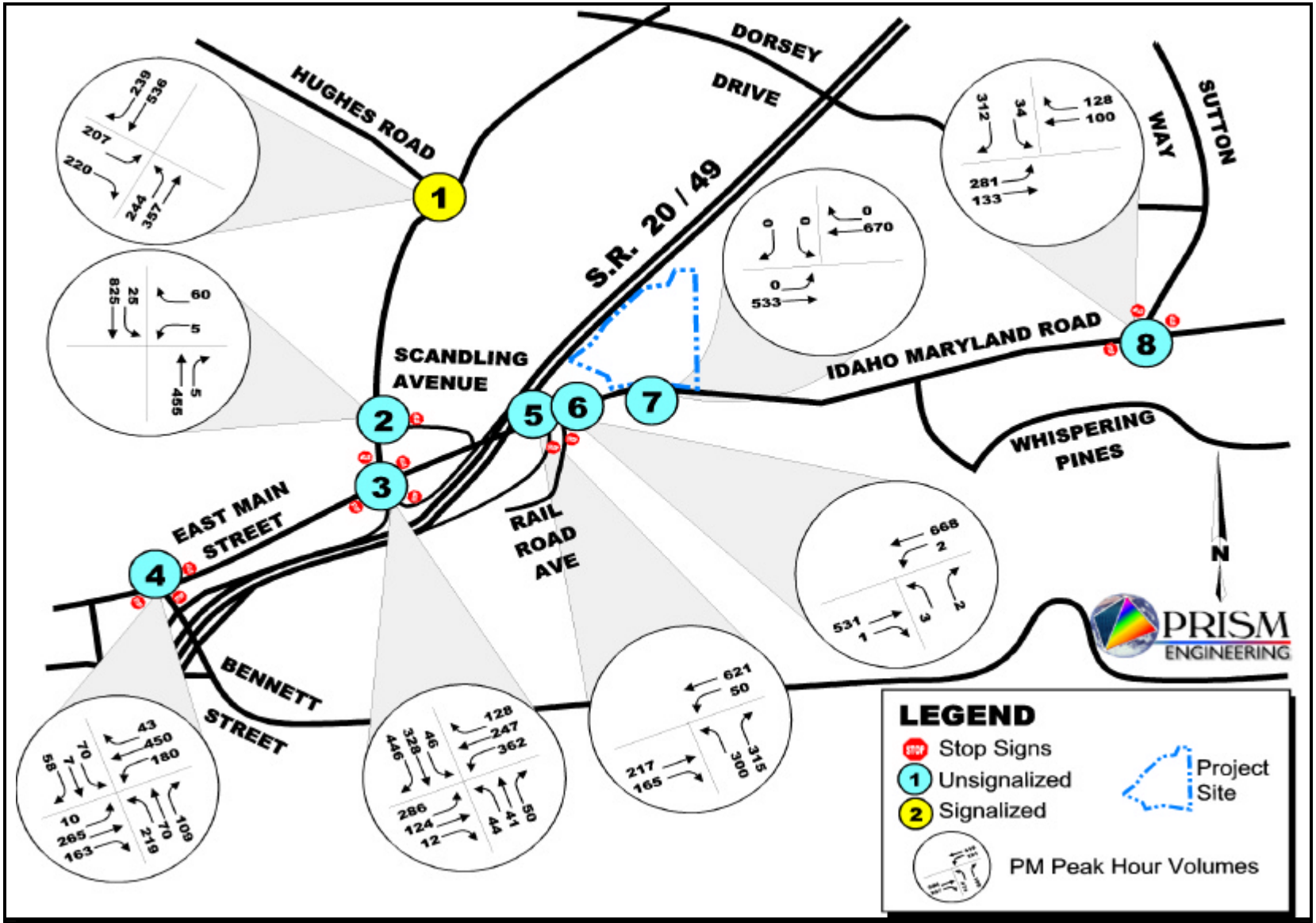
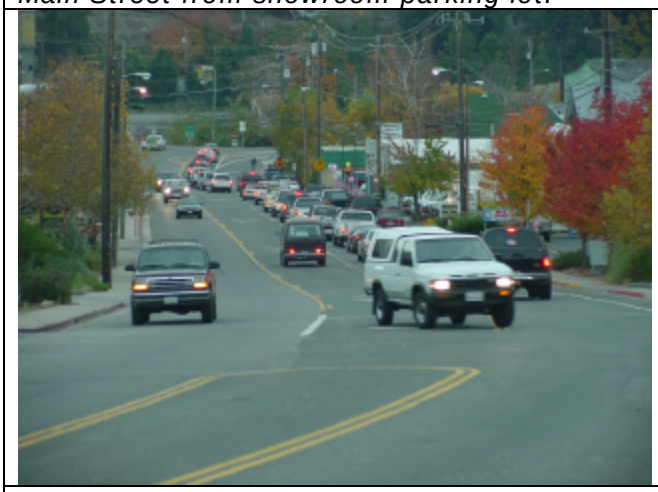


Figure 2 Study Area Intersections and PM Peak Hour Turning Movements

East Main Street auto lot looking east across Main Street from showroom parking lot.

East Main Street looking south to Hughes Road intersection. Signal control



East Main Street looking south to Idaho Maryland Road during pm peak hour

Idaho Maryland Road at Railroad Avenue looking west to SR 20/49 freeway

Scandling looking west to East Main Street. Stop sign control on Scandling only

Sutton looking south to Idaho Maryland Road, three way stop sign control

Figure 3 Project Area Intersection Photos

Project Trip Generation and Distribution

The project consists of moving an existing auto dealership to a new location, with an expansion of facility size in the process. The existing Weaver Auto and Truck Center on East Main Street in Grass Valley consists of 23,275 square feet of gross floor area. The new facility is proposed to have a total of 30,500 square feet of gross floor area.

Based on ITE's Land Use 841 pm peak hour trip rate of 2.80 trips/1000 square feet, the existing facility would equate to 65 trips (40% inbound and 60% outbound) using the ITE formulas. However, PRISM Engineering conducted an on-site traffic count of the Weaver Auto and Truck Center facility, and observed 58 vehicles per hour that came to and from the site. This did not include internal traffic, such as moving a car from the storage lot to the customer area near the showroom. It was further observed that 50% of the vehicles leaving and entering the site were to and from the north on East Main Street, and the remaining 50% were to and from the south. Based on the PRISM count, the existing dealership is producing traffic at a rate of about 15% less than the average ITE trip counts. This makes sense given the "less than average" existing new car dealership located on a relatively low volume surface street with no freeway exposure.

The PRISM Engineering count was 58 trips/hour for the existing facility.

With a new facility, it is expected that exposure and business will improve, and that the ITE average rates will reasonably apply. Since the field count is very close to the ITE rates, this report uses the ITE rates for the future site. The field counts are used to subtract out the existing Weaver Auto traffic using the trip distribution pattern illustrated in Figure 4. This information is taken from Weaver Auto and Truck Center's existing customer database address records which indicate that their customers are spread out with the following percentages:

1. Grass Valley 54%
2. Nevada City 25%
3. Penn Valley 13%
4. Out of Area* 8%

**Out of Area represents Colfax, Foresthill, Granite Bay, Sacramento, Downieville, Lincoln

Weaver Auto averages 36 customers per day in the Service Department. They also offer after hours pick up of people's cars, meaning they can pick up their car on the weekends. Most of the peak hour activity at an auto dealership is due to service center traffic, and not new car sales which

typically take place on the weekends. It is important to note however, that the bulk of traffic activity at an auto dealership is related to service traffic and not new car sales. Weekday traffic rates for an auto dealership is about twice the rate of a Saturday, and four times the rate of a Sunday.

Weekday trip rates for Auto Dealerships are about twice that of Weekend rates

The ITE Trip Generation Manual provides descriptions of various land uses and gives associated trip generation rates. The land use code selected for this project was "New Car Sales" or ITE land use code 841. The description in the ITE Trip Generation Manual, 6th edition is given as follows:

> *"New car sales dealerships are typically located along major arterial streets that are characterized by abundant commercial development. Automobile services, parts sales, and substantial used car sales may also be available. Some dealerships also include leasing options and truck sales and servicing."*

Such is the case with this project, in that it has its own dedicated service center, a show room, and new car sales lots. There were 28 independent trip generation surveys which averaged to 2.80 trips per 1000 square feet for the pm peak hour, with 40% entering and 60% exiting. The range of rates averaged for this category was 1.49 trips to 5.81 trips. The average size of the dealerships was 30,000 gross square feet.

Table 1
Trip Generation Summary for Proposed Project

ITE Code	Land Use	Quantity	Daily Trip Rate	Peak Hour Trip Rate	Daily Trips	Peak Trips
841	New Car Sales	30.500 KSF	37.50	2.80	1144	85
N/A	Gas Tank On Site	1000 GAL	-7.09	-1.00	-7	-1
	PM Peak Hour Total >>>				**1137**	**84**
ITE Trip Generation Manual, 6th Edition						
PRISM Engineering						

Source: ITE Trip Generation Manual, 6th Edition, and PRISM Engineering

The new auto dealership site will have an onsite gasoline tank (1000 gallons) which will enable the on-site refueling of vehicles, slightly reducing the traffic impact. There is currently a winter monthly average of 155 trips made for refueling of vehicles off-site, and a summer average of 195 trips / month. This equates to about 7 vehicle trips per weekday (80% of refueling takes place on weekdays).

The project's trip generation is expected to have the greatest impact during the pm peak hour time period, or when the highest volumes are expected on adjacent streets (midweek peak hour between 4:00-6:00 pm). The project trip generation during the pm peak hour of an average midweek day is the focus of the scenarios in this traffic study.

Since the Weaver Auto and Truck Center is an existing business with an established customer base of 4,680 buyers from specific zip codes , the trip distribution of the project traffic is necessarily developed with this information. It is a known trip distribution of 54% to Grass Valley, 25% to Nevada City, 13% to Penn Valley, and 8% to Placer County and beyond. Figure 4 shows how this existing project traffic is assigned to the road given the known fact that 50% of the traffic enters and leaves the site to the north on East Main Street, and the remaining 50% heads to and from the south on East Main Street.

When the dealership is moved to the east of the SR 20/49 freeway to the proposed new location along Idaho Maryland Road, the traffic patterns change to accommodate the increased exposure to the freeway and the easier access to and from the freeway by virtue of its proximity to the SR 20/49 eastbound ramps. The 25% of traffic that heads to and from Nevada City, for instance, will not use East Main Street to make this movement, but rather would use the freeway since it is closer and more convenient to do so. These types of traffic pattern changes are shown and implied in Figure 5 which shows an increase in traffic to the freeway and Sutton Way. Even so, 85% of the project traffic is expected to travel to and from the west on Idaho Maryland Road, with the remaining 15% to and from the east on Idaho Maryland Road.

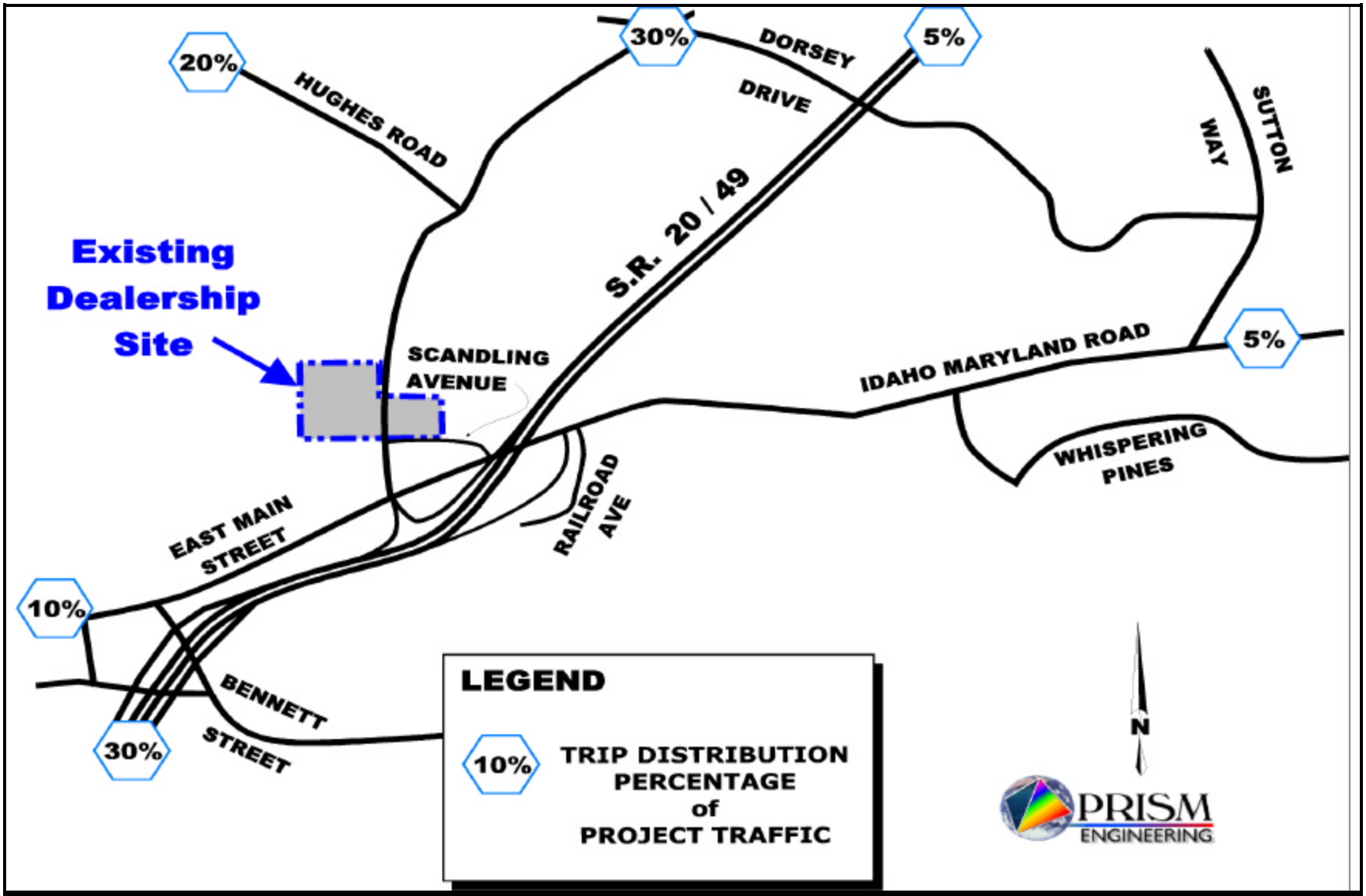


Figure 4 Trip Distribution of Existing Weaver Auto / Truck Center Site (west of SR 20 / 49)

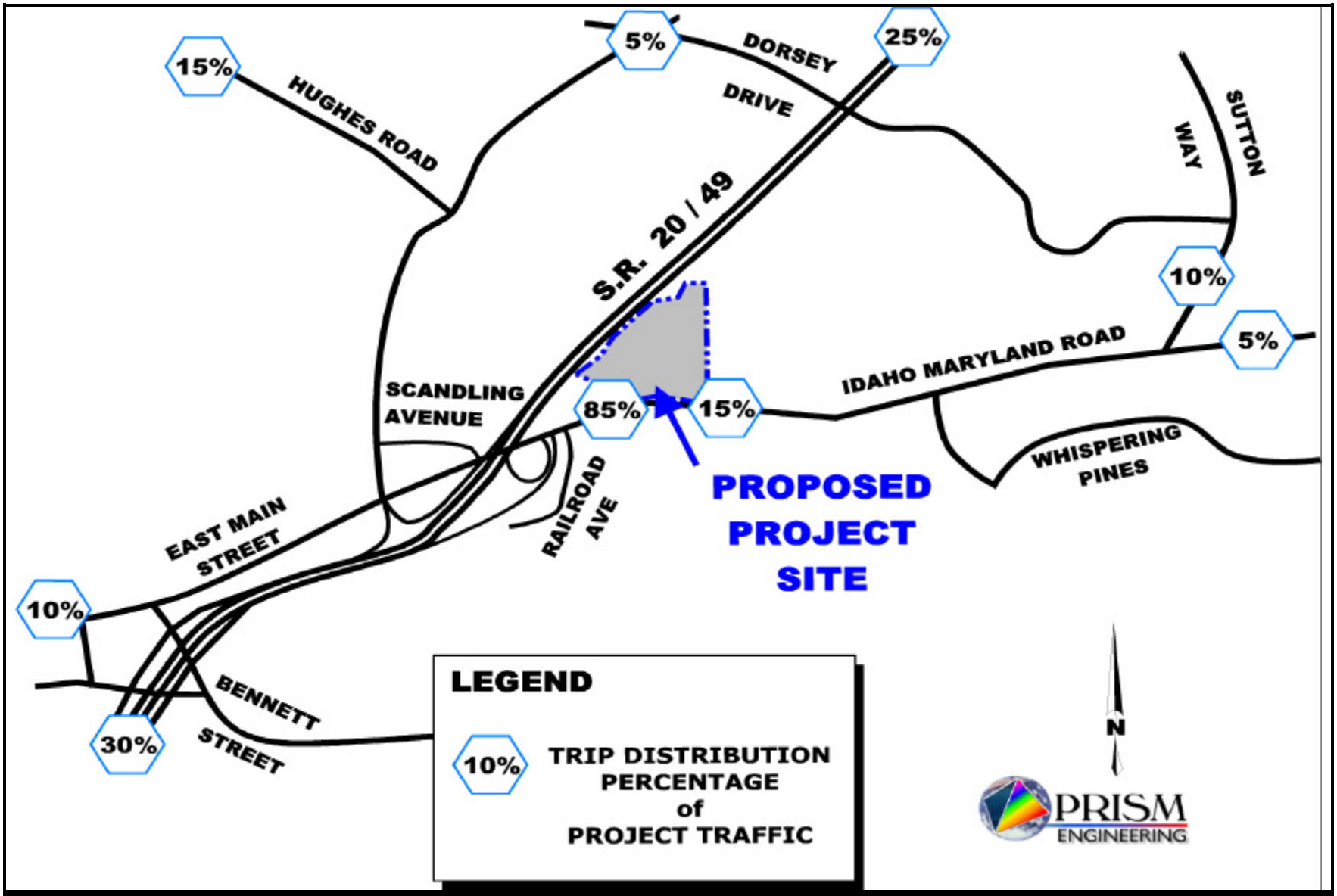


Figure 5 Trip Distribution of Proposed Weaver Auto / Truck Center Site (east of SR 20 / 49)

Traffic Analysis

Based on direction from Grass Valley Staff, the traffic analysis examines the Year 2004 plus project as well as the Year 2009 plus project scenarios. The study intersections in the vicinity of the project site include:

1. East Main Street and Hughes	Signal
2. East Main Street and Scandling	Stop Sign on Scandling
3. East Main Street and Idaho Maryland Road	All-way Stop
4. East Main Street and Bennett Street	All-way Stop*
5. Idaho Maryland Road and SR 20 EB Ramps	Stop Sign on Offramp
6. Idaho Maryland Road and Railroad Avenue	Stop Sign on Railroad
7. Idaho Maryland Road and Project Access	Stop Sign on Access
8. Idaho Maryland Road and Sutton Way	All-way Stop

**This intersection will be signalized when construction is complete in 06/04*

The existing pm peak hour turning movements for each of these intersections are identified on Figure 2. The existing turning movements were taken from recent previously completed reports[4] and factored up to Year 2004 conditions. Year 2009 traffic projections take into account the installation of the Dorsey Drive freeway interchange.

Methodology

All future traffic volumes were developed using the NCTC's MINUTP and TP+ traffic models. The Existing plus project, as well as the future (Year 2009) plus project traffic scenarios during the pm peak hour were selected as the analysis time periods for the purposes of this study. The growth rate in the study area is approximately 2% per year[5], or a 10% increase by the Year 2009. The scenarios include:

- Existing Conditions (Based on Existing Counts)
- Existing Conditions (Based on Existing Counts) plus Approved Projects
- Existing + Approved Projects + Relocated Dealership Site
- Year 2009 without Dorsey
- Year 2009 with Dorsey and regional projects + Full Buildout of Project

[4] Sierra Nevada Memorial Hospital (2002), and NCTC Frontage Road Studies (2004)
[5] NCTC Traffic Model comparison of Year 2027 and 2002 volumes on SR 20/49 at Idaho Maryland Road (61% increase over 25 years).

Synchro 5.0 was utilized to calculate level of service for each of the study intersections. The Synchro software is capable of analyzing each intersection using the HCM 2000 methodology for signalized and unsignalized intersections. The HCM 2000 method is a conservative approach, and does not take into account the added benefits in level of service that various signal timing schemes can generate. For this reason, it is to be considered a worst-case analysis.

Reference is made to Table 2 for a summary of the "delay" level of service criteria used in the HCM 2000 methodology analyses. Levels of service were calculated using a delay criteria scale as follows:

Table 2
Delay Level of Service Criteria

LOS	Unsignalized	Signalized
A	1-10 seconds	1-10 seconds
B	11-15 seconds	11-20 seconds
C	16-25 seconds	21-35 seconds
D	26-35 seconds	36-55 seconds
E	36-50 seconds	56-80 seconds
F	51+ seconds	81+ seconds

Source: PRISM Engineering, Synchro Pro, and HCM 2000

Interpreting the "Delay" Level of Service

The Intersection Delay field shows the average control delay for a signalized intersection and it is calculated by taking a volume weighted average of all the delays for each movement in each intersection approach. This method of LOS rank is based on how well an intersection may operate given LOS enhancing mitigations through signal timing.

Table 3 follows, and reports the levels of service (based on HCM 2000 delay methodology) for the Year 2004 conditions, including mitigation.

Table 4 reports the levels of service for all Year 2009 scenarios, including mitigation, but without the Dorsey Drive interchange in place. Table 5 shows the conditions when the Dorsey Drive interchange is constructed and traffic patterns change.

Table 3

Year 2004 PM Peak Hour Analysis Summary
Movement of Existing Weaver Auto and Truck Center Dealership Only, No Mitigation

No.	Location/Approach	2004 + AP P.M. Peak Hour Delay[1]	2004 + AP P.M. Peak Hour LOS	Subtract out Old 2004+AP-OLD P.M. Peak Hour Delay[1]	Subtract out Old 2004+AP-OLD P.M. Peak Hour LOS	Add in New Site 2004+AP+NEW P.M. Peak Hour Delay[1]	Add in New Site 2004+AP+NEW P.M. Peak Hour LOS
1	East Main Street and Hughes	18	B	17	B	17	B
2	East Main Street and Scandling	1	A/C	1	A/C	1	A/C
3	East Main Street and Idaho Maryland Road	56	F	53	F	57	F
4	East Main Street and Bennett Street*	12	B	12	B	12	B
5	Idaho Maryland Road and SR 20 EB Ramps	38	E/F	36	E/F	44	E/F
6	Idaho Maryland Road and Railroad Avenue	1	A/C	1	A/C	1	A/C
7	Idaho Maryland Road and Project Access	na	na	na	na	1	A/C
8	Idaho Maryland Road and Sutton Way	8	A	8	A	8	A

[1]Average delay per vehicle in seconds
LOS = Level of service
AP = Approved Projects

**This intersection is under construction, and was analyzed as a signalized intersection (effective June 2004)*

Source: PRISM Engineering, SynchroPro Software output (see appendix for details on calculations).

Note: On intersections where stop sign control is for all approaches, one LOS is shown. On intersections where a side street is stop sign controlled, the overall LOS is shown along with the side street LOS (i.e. A/C). The average delay at the intersection is reported in all cases. All delays are rounded to the nearest second.

Table 4

Year 2009 PM Peak Hour Analysis Summary
Without Dorsey Drive Interchange, with Mitigation

No.	Location/Approach	2009 P.M. Peak Hour		Without Dorsey 2009 + PROJ P.M. Peak Hour		w/o Dorsey, mitig. 2009 + PROJ P.M. Peak Hour		Mitigation Description
		Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	
1	East Main Street and Hughes	18	B	19	B	19	B	none needed
2	East Main Street and Scandling	1	A/C	1	A/C	1	A/C	none needed
3	East Main Street and Idaho Maryland Road	84	F	89	F	**33**	**C**	**Signal**
4	East Main Street and Bennett Street*	14	B	14	B	14	B	none needed
5	Idaho Maryland Road and SR 20 EB Ramps	57	F	100+	F	**37**	**D**	**Signal**
6	Idaho Maryland Road and Railroad Avenue	1	A/C	1	A/D	1	A/D	none needed
7	Idaho Maryland Road and Project Access	na	na	1	A/C	1	A/C	none needed
8	Idaho Maryland Road and Sutton Way	8	A	8	A	8	A	none needed

[1]Average delay per vehicle in seconds
LOS = Level of service
AP = Approved Projects

**This intersection is under construction, and was analyzed as a signalized intersection (effective June 2004)*

Source: PRISM Engineering, SynchroPro Software output (see appendix for details on calculations).

Note: On intersections where stop sign control is for all approaches, one LOS is shown. On intersections where a side street is stop sign controlled, the overall LOS is shown along with the side street LOS (i.e. A/C). The average delay at the intersection is reported in all cases. All delays are rounded to the nearest second.

Table 5

Year 2009 PM Peak Hour Analysis Summary
With Dorsey Drive Interchange, with Mitigation

No.	Location/Approach	2009 P.M. Peak Hour		With Dorsey 2009 + PROJ P.M. Peak Hour		w/ Dorsey, mitig. 2009 + PROJ P.M. Peak Hour		Mitigation Description
		Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	
1	East Main Street and Hughes	18	B	19	B	19	B	none needed
2	East Main Street and Scandling	1	A/C	1	A/C	1	A/C	none needed
3	East Main Street and Idaho Maryland Road	25	D	26	D	**11**	**B**	**Signal**
4	East Main Street and Bennett Street*	11	B	11	B	11	B	Signal
5	Idaho Maryland Road and SR 20 EB Ramps	37	E	44	E/F	**26**	**C**	**Signal**
6	Idaho Maryland Road and Railroad Avenue	1	A/C	1	A/D	1	A/D	none needed
7	Idaho Maryland Road and Project Access	na	na	1	A/C	1	A/C	none needed
8	Idaho Maryland Road and Sutton Way	8	A	8	A	8	A	none needed

[1]Average delay per vehicle in seconds
LOS = Level of service
AP = Approved Projects

**This intersection is under construction, and was analyzed as a signalized intersection (effective June 2004)*

Source: PRISM Engineering, SynchroPro Software output (see appendix for details on calculations).

Note: On intersections where stop sign control is for all approaches, one LOS is shown. On intersections where a side street is stop sign controlled, the overall LOS is shown along with the side street LOS (i.e. A/C). The average delay at the intersection is reported in all cases. All delays are rounded to the nearest second.

Mitigation Summary

Idaho Maryland Road at East Main Street. This intersection currently operates at LOS E/F conditions during the pm peak hour. This location has been the subject of much study in several recent traffic studies. The City's Street System Master Plan has identified this location as needing mitigation. A signal has been identified as the needed mitigation, but with associated improvements to the SR 20/49 onramp and frontage road system. A signal mitigation is not acceptable to Caltrans if the traffic weave with the existing freeway traffic is not also mitigated. As a potential solution currently under Caltrans review, the onramp traffic can be diverted to the Bennett Street offramp (ramp would be widened to two lanes) with a K-Rail in the center of the widened ramp. Traffic is sent south along the frontage road through a series of signals until entering the SR 20/49 freeway via the Auburn Street onramp (which is also widened to two lanes for a short distance). Mitigation of the Idaho Maryland / East Main intersection with a signal brings level of service to LOS C conditions through the Year 2009, and to LOS B when the Dorsey Drive interchange is constructed (reducing volumes to the Idaho Maryland / East Main intersection by 25%[6]).

Idaho Maryland Road at SR 20/49 EB Ramps. This intersection operates at acceptable levels of service for the Idaho Maryland Road traffic flows, but has very high delays for the SR 20/49 EB offramp traffic. The offramp is stop sign controlled, and all of the Idaho Maryland Road approaches are not controlled. Current level of service is LOS E overall, with LOS F for the offramp traffic. This intersection has been previously identified as a regional project, but is not slated for immediate regional funding. This signal has previously been in the City's CIP as well. The addition of the proposed Weaver auto dealership traffic would significantly increase the delay at this intersection from 38 seconds to 44 seconds. Based on the City's criteria for mitigation, the project would need to mitigate this location, and be reimbursed through the regional fee program. The intersection can be mitigated with a signal installation, which would yield LOS D conditions until the Dorsey Drive interchange is constructed, and then LOS C conditions after construction. Traffic volumes on the adjacent Railroad Avenue intersection are low, and Railroad Avenue traffic would experience LOS D conditions, while Idaho Maryland traffic experiences LOS A. This does not require mitigation, and the intersection can be left in its current condition. Should future development projects come on line for Railroad Avenue

[6] Source: NCTC Traffic Model, PRISM Engineering

(beyond what was assumed in the NCTC traffic model), this recommendation would need to be revisited to examine the higher traffic volumes.

East Main Street at Bennett Street. The traffic operations at this intersection are in transition during the construction phase of increasing the size and improving the alignment of Bennett Street with Richardson Street. The intersection will ultimately be a four way intersection with traffic signal control. It is currently under stop sign control during the construction of the Richardson Street connector. This mitigation is fully funded and will be in place approximately by June / July 2004, with signalization in place at that time. No further mitigation beyond what is planned is necessary.

Project Access Driveways. The volumes along Idaho Maryland Road are high enough to warrant the need for "protected" left turn access into the project site driveways. The westerly access driveway is immediately adjacent to the driveway at the adjacent (westerly) parcel. That westerly parcel already has a left turn pocket access into the site. It is not feasible to install an additional left turn pocket so close to the existing pocket, and so this is not recommended. It is recommended that the left turn pocket be installed at the easterly driveway for the Weaver project site. This will require some widening of the roadway as there is only paved area for two lanes today. The road does widen to a full three lane cross section midway to the west edge of the Weaver project site.

As an alternative to installation of a left turn pocket, and one which would allow full access at both Weaver project site driveways, would be for the City to stripe a two way left turn lane along Idaho Maryland Road from Railroad Avenue to the project site driveways. Figure 6 shows a photo of the project site in relation to Idaho Maryland Road as viewed from the east side looking west. As can be seen from the figure, Idaho Maryland Road narrows from three lanes down to two lanes in the vicinity of the Weaver project site. Some widening of Idaho Maryland Road (on the Weaver project site side) will be necessary to accommodate a three lane cross section needed for left turn access into the site. It appears possible that the guard rails on the north side of Idaho Maryland Road in the photo can be removed, and Idaho Maryland Road be extended into the project site, until a three lane cross section width is achieved past the project site.

Figure 6 Project Site and Idaho Maryland Road Varying Widths

APPENDIX